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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/687,861

Filing Date: October 17, 2003

Appellant(s): GRIGGS ET AL.

Anthony J. Griggs
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 2, 2006 appealing from the Office action mailed December 12, 2005 and March 15, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal: is contained in the brief.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendments to the claims have been made during the prosecution of this application.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

Prior Art of Record

6,671,571 Matsumiya et al. 12/30/2003

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

Claims 1-93 are anticipated under 35 USC § 102 (e) by U.S. Patent No. 6,671,571 to Matsumiya et al.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

The examiner in the rejection of the claims under appeal relies upon evidence Matsumiya et al. (U.S. Patent 6,671,571).

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-93 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsumiya et al. (U.S. Patent 6,671,571).

Regarding claims 1, 28, 31, 55, 57, 76-79, 84, 86, 92 and 93, Matsumiya discloses generating, from a dimensional metrology program, a machine tool program including instructions to control a machine tool to perform coordinate measurements (element 31), wherein the machine tool program is executable on a machine tool controller (Fig. 1, element 27); analyzing coordinate measurement data generated by execution of the machine tool program using dimensional metrology analysis 9column 6, lines 36-49).

Regarding claims 1-27, 29-30, 32-54, 56, 58-75, 80-83, 85 and 87-91, Matsumiya discloses the method according to claim 1, further comprising an act of: the machine tool controller executing the machine tool program to produce coordinate measurement data (element 51); communicating the coordinate measurement data to a dimensional metrology analysis module (element 72); the dimensional metrology analysis module analyzing the coordinate measurement data (column 6, lines 36-49); generating an additional machine tool program based on results of act (column 6, line 63-column 7, line 3); the additional machine tool program comprises instructions to control a machine tool to perform coordinate measurements (Fig. 2); wherein the additional machine tool program comprises instructions to control a machine tool to perform machining operations (column 3, lines 12-25); wherein the additional machine tool program comprises instructions to control a machine tool to perform coordinate measurements and machining operations (column 8, lines 62-column 9, line4); the dimensional metrology analysis module analyzing the coordinate measurement data using over determined objective functions 9column 8, lines 1-12); the dimensional metrology

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program is configured to control a coordinate measurement machine (Fig. 1); communicating the machine tool program to the machine tool controller (element 25); communicating the machine tool program to the machine tool controller in one communication (element 20); an application integrated within a control panel of the machine tool controller (Fig. 9); selecting one of a plurality of machine definitions, each machine definition providing values for one or more parameters of a machine tool (element 26); least one of: a tool offset type; a parameterized move command; and a parameterized measure command (column 5, lines 1-15); combining the machine definition with a dimensional metrology path definition (Fig. 4A); the machine tool controller executing the machine tool program without receiving further instructions during execution (column 4, lines 57-65); the machine tool controller receiving one or more instructions regarding an offset value during execution of the machine tool program (column 4, lines 35-51); the machine tool program comprises G and M codes (column 7, lines 18-32); translating the dimensional metrology program into the machine tool program (elements 25 and 26); removing dimensional metrology program commands from the dimensional metrology program (Fig. 2); inserting into the machine tool program numeric control commands that are not present in the dimensional metrology program (Fig. 1); providing indicators within the machine tool program, the indicators including information regarding a quantity of coordinate measurements associated with a workpiece feature (column 6, lines 26-43); a program generator to generate, from a dimensional metrology program, a machine tool program including instructions to control a machine tool to perform coordinate measurements, wherein the

machine tool program is executable on a machine tool controller (column 6, line 63-column 7, line3); an analysis module to perform dimensional analysis of coordinate measurement data that result from execution of the machine tool program (Fig. 3, column 7, lines 11-21).

(10) Response to Argument

Regarding independent claims 1, 31, 86, and 92 and dependent claims 3-6, 8-13, 15, 16, 18-20, 23-26, 33-36, 38-45, 47, 48, 50-53 and 87-91, Appellants argue, on pages 9 and 10 of the brief, Matsumiya does not generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements or generation a machine tool program from a dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are automatically determined. Necessary information other than theses tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface

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(b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) **Calling of coordinate systems.**

Regarding dependent claims 2 and 32 Appellants argue, on page 11 of the brief, Matsumiya does not disclose executing a machine tool program to produce coordinate measurement data. However, Examiner disagrees since Matsumiya discloses a measuring machine 31 **executes coordinate measurement** of the workpiece 30 **according to the measurement program** of a measurement control apparatus 32. The measured results are feed back to the NC program execution means 27 of the NC apparatus 25 in the next process via a measurement result analyzing means 33 (column 4, lines 58-65; Fig. 2).

Regarding dependent claims 7 and 37, Appellants argue, on page 11 of the brief, Matsumiya does not disclose a machine tool program that includes instructions to control a machine tool to perform coordinate measurement. However, Examiner disagrees since Matsumiya discloses in par. Col. 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are automatically

determined. Necessary information other than theses tolerance information are as follows.

1. Information particular to measurement program
 - (a) Program name
 - (b) Program file name
 - (c) File name of output result
 - (d) Device for outputting result
 - (e) Format for outputting result
 - (f) Others (process control information, or the like)
2. Information particular to measuring machine
 - (a) Setting of datum surface
 - (b) Unit (mm/inch)
 - (c) Travelling and measuring speed
 - (d) Parameters of measuring operation
 - (e) Probe (measurement value) information
 - (f) Reference information
 - (g) others (a master ball for calibrating a probe, or the like)
3. **Information particular to setting of initial coordinate systems**
 - (a) Switching of automatic measurement and manual measurement
 - (b) **Calling of coordinate systems.**

Regarding dependent claims 14 and 46, Appellants argue, on page 11 of the brief, Matsumiya does not disclose an application integrated within a control panel of the machine tool controller. However, Examiner disagrees since Matsumiya discloses in col.4, lines 35-50, i.e., a servo control signal to the servo control means 28. Thus, the machine tool 26 can be controlled in a feed drive control by the drive signal output from the servo control means.

Regarding dependent claim 17, Appellants argue, on page 12 of the brief, Matsumiya does not disclose the machine tool program comprises combining a machine definition with a dimensional metrology path definition. However, Examiner disagrees since Matsumiya discloses in Fig. 3, and Fig. 7-9; i.e., tool list definition and three dimensional coordinate measuring path definition and the measurement control

apparatus 32 sends a command indicating measurement paths defined by the predetermined measurement program to the probe of the measuring machine 31.

Regarding dependent claim 21, Appellants argue, on page 12 of the brief, Matsumiya does not disclose generation a machine tool program from a dimensional metrology comprises translating the dimensional metrology into the machine tool program. However, Examiner disagrees since Matsumiya discloses in col.6, lines 38-43, i.e., The NC program analyzing division 41 supplies coordinate data existing in the NC program to a coordinate system conversion division 43 to convert the coordinate systems prepared for NC machining to the three-dimensional coordinate systems for measurement. A list of the extracted working elements and a list of the converted coordinate systems are supplied to a geometrical element producing division 44 of the geometrical model producing division 35, and the working element designated by the NC program 40 is converted to a geometrical element in an ordinary three-dimensional coordinate system, and then output.

Regarding dependent claims 22 and 49, Appellants argue, on page 13 of the brief, Matsumiya does not disclose removing a dimensional metrology program commands from the dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in col. 5, lines 24-43, i.e., the machining shape information extracting division 34 extracts the quality information from the actual machining NC program and directly outputs the quality information to the measurement program producing division 36.

Regarding dependent claims 27 and 54, Appellants argue, on page 13 of the brief, Matsumiya does not disclose generation of the machine tool program comprises providing indicators within the within the machine tool associated with a workpiece feature. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are automatically determined. Necessary information other than theses tolerance information are as follows.

1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like)
2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like)
3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) **Calling of coordinate systems.**

Regarding dependent claims 91, Appellants argue, on page 13 of the brief, Matsumiya does not disclose the quantity of coordinate dimensional associated with a workpiece feature. However, Examiner disagrees since Matsumiya discloses in col. 8,

line 54-col. 9, line 4, i.e., the relationship between the NC machining program and the measurement program by feeding-back the actual machining shapes to the work control by the machine tool while measuring the machining shapes during actual machining operation by the measurement program.

Regarding independent claims 28 and 93, and dependent claims 29-30, Appellants argue, on page 14 of the brief, Matsumiya does not disclose generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements or generation a machine tool program from a dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are automatically determined. Necessary information other than theses tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. Information particular to

setting of initial coordinate systems (a) Switching of automatic measurement and manual measurement (b) **Calling of coordinate systems.**

Regarding independent claim 55, and dependent claims 56, Appellants argue, on page 14 of the brief, Matsumiya does not disclose generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements or generation a machine tool program from a dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are automatically determined. Necessary information other than these tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) **Calling of coordinate systems.**

Regarding independent claims 57, 76 and 77, and dependent claims 59-61, 63-64, 66-68, 71-75, Appellants argue, on page 14 of the brief, Matsumiya does not disclose generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements or generation a machine tool program from a dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are automatically determined. Necessary information other than theses tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) **Calling of coordinate systems.**

Regarding dependent claim 58, Appellants argue, on page 15 of the brief, Matsumiya does not disclose generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are automatically determined. Necessary information other than these tolerance information are as follows.

1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like)
2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like)
3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) **Calling of coordinate systems.**

Regarding dependent claims 62, Appellants argue, on page 16 of the brief, Matsumiya does not disclose generate a machine tool program of any kind by an application integrated within a control panel of the machine tool controller. However,

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Examiner disagrees since Matsumiya discloses in col.4, lines 35-50, i.e., a servo control signal to the servo control means 28. Thus, the machine tool 26 can be controlled in a feed drive control by the drive signal output from the servo control means.

Regarding dependent claim 65, Appellants argue, on page 16 of the brief, Matsumiya does not disclose the machine tool program comprises combining a machine definition with a dimensional metrology path definition. However, Examiner disagrees since Matsumiya discloses in Fig. 3, and Fig. 7-9; i.e., tool list definition and three dimensional coordinate measuring path definition and the measurement control apparatus 32 sends a command indicating measurement paths defined by the predetermined measurement program to the probe of the measuring machine 31.

Regarding dependent claim 69, Appellants argue, on page 16 of the brief, Matsumiya does not disclose generation a machine tool program from a dimensional metrology comprises translating the dimensional metrology into the machine tool program. However, Examiner disagrees since Matsumiya discloses in col.6, lines 38-43, i.e., The NC program analyzing division 41 supplies coordinate data existing in the NC program to a coordinate system conversion division 43 to convert the coordinate systems prepared for NC machining to the three-dimensional coordinate systems for measurement. A list of the extracted working elements and a list of the converted coordinate systems are supplied to a geometrical element producing division 44 of the geometrical model producing division 35, and the working element designated by the NC program 40 is converted to a geometrical element in an ordinary three-dimensional coordinate system, and then output.

Regarding dependent claims 70, Appellants argue, on page 17 of the brief, Matsumiya does not disclose generation of the machine tool program comprises removing a dimensional metrology program commands from the dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in col. 5, lines 24-43, i.e., the machining shape information extracting division 34 extracts the quality information from the actual machining NC program and directly outputs the quality information to the measurement program producing division 36.

Regarding independent claim 78, Appellants argue, on page 17 of the brief, Matsumiya does not generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements or generation a machine tool program from a dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are automatically determined. Necessary information other than these tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c)

Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) **Calling of coordinate systems.**

Regarding independent claim 79 and dependent claims 80-83, Appellants argue, on pages 9 and 10 of the brief, Matsumiya does not generate a machine tool program that executable on a machine tool controller to perform coordinate measurements without interaction with program generator. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are automatically determined.

Necessary information other than theses tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for

calibrating a probe, or the like) 3. **Information particular to setting of initial coordinate systems** (a) Switching of automatic measurement and manual measurement (b) ***Calling of coordinate systems.***

Regarding independent claim 84 and dependent claims 85, Appellants argue, on page 17 of the brief, Matsumiya does not generate a machine tool program that includes instructions to control a machine tool to perform coordinate measurements or generation a machine tool program from a dimensional metrology program. However, Examiner disagrees since Matsumiya discloses in column 8, lines 12-44, i.e., the necessary measurement program 50 based on the required machining quality information input from the NC program analyzing division 41 and also based on the probe information 47 and the other information 49 as shown in FIG. 2, if necessary. In this case, referencing **commands** for comparing the required tolerances such as tolerances of holes, **dimensional tolerances**, or the like with the measured values are automatically determined. Necessary information other than these tolerance information are as follows. 1. Information particular to measurement program (a) Program name (b) Program file name (c) File name of output result (d) Device for outputting result (e) Format for outputting result (f) Others (process control information, or the like) 2. Information particular to measuring machine (a) Setting of datum surface (b) Unit (mm/inch) (c) Travelling and measuring speed (d) Parameters of measuring operation (e) Probe (measurement value) information (f) Reference information (g) others (a master ball for calibrating a probe, or the like) 3. **Information particular to**

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setting of initial coordinate systems (a) Switching of automatic measurement and manual measurement (b) **Calling of coordinate systems.**

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

(12). Conclusion

A copy of the claims involved in the present appeal is attached hereto as Appendix A on applicant appeal brief.

For the above reasons, it is believed that the rejections should be sustained.

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Respectfully submitted,



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October 24, 2006

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